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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,858	01/05/2004	Toshiaki Tsuda	Q79273	3964

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EXAMINER

CANNING, ANTHONY J

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 04/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/750,858	Applicant(s) TSUDA ET AL.	
	Examiner Anthony J. Canning	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: English translation of JP 2001-076677.

DETAILED ACTION

Acknowledgement of Amendment

1. The amendment to the instant application was entered on 18 January 2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated over Tokuichi et al. (J.P. 2001-076677) (of record).
4. As to claims 1, 8, 15, 16 and 20, Tokuichi et al. disclose a discharge bulb, comprising: an arc tube fixedly positioned and forwardly elongating from an insulating base positioned behind said arc tube (see Fig. 1, item 1; paragraph 0011), the arc tube including; a ceramic, straight, and cylindrical light emitting tube positioned in said arc tube (paragraphs 0004 and 0007), said light emitting tube having sealed end portions to form an enclosed space therein (see Fig. 1; paragraph 0003); and electrodes opposingly disposed in said light emitting tube where said enclosed space is filled with a light emitting substance and a starting rare gas (see Fig. 1, items 5; paragraph 0003 and 0011; a halogenide is a rare gas); and wherein first and second light blocking portions are disposed on a first portion and second portion of said arc tube that corresponds to both rears of the sealed end portions of said light emitting tube, said light blocking portion extending over

an axial portion at least a predetermined range from an upper side in a circumferential direction to both lateral sides of said light emitting tube. (see Fig. 5, item 10; paragraph 0007, the diameter of item 6, which is also item 10 is the same as the inside of the cylinder; paragraph 0014, molybdenum will cause a light-blocking layer and will also block UV radiation).

5. As to claims 2, 9 and 17, Tokuichi et al. disclose the discharge bulb according to claims 1 and 8. Tokuichi et al. further disclose a second light blocking portion disposed at a second portion of the light-emitting tube that corresponds to a front one of the sealed end portions of the light-emitting tube, where the second light blocking portion extends, in the circumferential direction over at least a range, from a lower side to both of the lateral sides of the light-emitting tube (see Fig. 1, item 6; see Fig. 3, items 6, 10 and 11; paragraph 0014, molybdenum will block light).

6. As to claims 3, 4, 10, 11 and 18, Tokuichi et al. disclose the discharge bulb of claims 1, 2, 8, 9 and 17. Tokuichi et al. further disclose the second light-blocking portion has width, in an axial direction of the light-emitting tube, at least corresponding to a width, in the axial direction, of the front and rear sealed end portion of the light-emitting tube (see Fig. 1, item 6; see Fig. 3, item 10; the layer has width and height both of which are axial directions).

7. As to claims 5, 6, 12, 13 and 17, Tokuichi et al. disclose the discharge bulb of claims 1, 2, 8, 9 and 16. Tokuichi et al. further disclose that the first light-blocking portion extends in the circumferential direction on both the lateral sides of the light-emitting tube to positions that horizontally coincide in level with a lowermost and uppermost position of the rear end sealed portion of the light-emitting tube (see Fig. 1, items 6 and Fig. 3, item 10; paragraph 0007, the diameter of item 6, which is also item 10 is the same as the inside of the cylinder).

Art Unit: 2879

8. As to claims 7, 14 and 19, Tokuichi et al. disclose the discharge bulb of claims 1, 8 and 16. Tokuichi et al. further disclose that the first light-blocking portion is disposed in the circumferential direction over a whole circumference the light-emitting tube (see Fig. 1, item 6 and Fig. 3, item 10; paragraph 0007, the diameter of item 6, which is also item 10 is the same as the inside of the cylinder).

Response to Arguments

9. The examiner acknowledges the amendments to claims 1-20.

10. In light of the amendments a new rejection has been given.

11. Tokuichi et al. disclose the claimed arc tube lamp, with molybdenum light blocking portions that circumferentially surround the end portions of the light emitting tube at the electrodes. This circumferential arrangement extends in an axial direction.

Final Rejection

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2879


CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Contact Information

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony J. Canning whose telephone number is (571)-272-2486. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh D. Patel can be reached on (571)-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anthony Canning 
31 March 2006


ASHOK PATEL
PRIMARY EXAMINER

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] About the high-pressure electric-discharge lamp which used the discharge tube made from an alumina, especially, it miniaturizes and this invention relates to the high-pressure electric-discharge lamp formed into the false point light source.

[0002]

[Description of the Prior Art] As a headlight for automobiles, the high-pressure electric-discharge lamp which used the discharge tube made from a quartz has been used widely because of advantages, such as the brightness, height of luminous efficiency, etc. Since the discharge tube is transparent, the light-emitting part by the luminescence gas in the discharge tube is treated as the light source of a electric-discharge lamp as it is and things are made, the electric-discharge lamp using such a quartz tube can be treated as the point light source, and is used as the light source of the lighting which needs the point light source like a headlight.

[0003]

[Problem(s) to be Solved by the Invention] However, if the high-pressure electric-discharge lamp using the quartz tube as the discharge tube is continuing and is used for a long period of time, the corrosion of a quartz tube progresses with staining substances, such as a halogenide enclosed inside, a devitrification phenomenon appears, and it conceals the light source section, will be in the condition that the whole quartz tube is emitting light, and has the problem with which it becomes impossible to deal as the point light source. Moreover, the flux of light also decreased and the life as the point light source was not so long as about 2000 hours.

[0004] Therefore, to the halogenide, it is stable and use to the head lamp of the high-pressure electric-discharge lamp using the ceramic discharge tube created with the long alumina of a life compared with the quartz is considered. Since this discharge tube made from an alumina is translucent, when luminescence between internal discharge electrodes sees from the discharge tube outside, it will be in the same condition as the whole discharge tube is emitting light. Therefore, the whole discharge tube had to be regarded as the emitter and it corresponded by making the discharge tube small, for forming the false point light source.

[0005] Drawing 5 was inserting and closing the electrode member 23 which is the cross-section explanatory view showing one example of such a conventional high-pressure electric-discharge lamp, formed the capillary 22 which consists of oxidation insulators, such as an alumina, like the both ends of the discharge tube 21 which consists of the barrel made from an alumina, and formed the discharge electrode 24 at the tip at the through tube of a capillary. In this configuration, it was possible to have formed small to whole die length of $L = 10\text{mm}$ and the diameter of about $D = 3\text{mm}$ of the discharge tube, but it was easy to generate a crack from the difference among both thermal-expansion properties, and the joint (closure section) of a capillary 22 and the electrode member 23 had become the big factor which bars reinforcement.

[0006] Then, this invention uses the discharge tube made from an alumina in view of the above-

mentioned trouble, and the formation of the false point light source is possible, and let it be a technical problem to realize the high-pressure electric-discharge lamp which stabilized junction to an electrode member and the discharge tube also as for **.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, invention of claim 1 It closes, while inserting an electrode member in both-ends opening of the cylinder object made from an alumina, respectively. It is the high-pressure electric-discharge lamp in which the discharge space filled up with ionization photogene and starting gas was formed in said cylinder. the current which supplies a current for said electrode member to a discharge electrode and a discharge electrode -- a conductor -- forming -- this current -- the pipe which inserts a conductor in opening of said cylinder object made from an alumina, and is joined with a jointing material for corrugated fibreboard -- with a conductor this pipe -- it inserts in the through tube of a conductor and has said discharge electrode at a tip -- cylindrical -- it is characterized by having formed with the conductor, and having set the diameter of said cylinder object made from an alumina to 1mmphi-6mmphi, and setting die length to 6mm - 15mm.

[0008] invention of claim 2 -- invention of claim 1 -- setting -- the cylinder object made from an alumina, and a current -- the pipe of a conductor -- it is characterized by forming a jointing material for corrugated fibreboard with a conductor with the porosity frame which consists of the sintered compact of the metal powder which can sink in glass, and a glass wax.

[0009] the principal component of the metal with which invention of claim 3 forms a porosity frame in invention of claim 2, and a pipe -- it is characterized by the principal component of the metal which forms a conductor being the same.

[0010] invention of claim 4 -- claim 1 thru/or invention [which / of 3] -- setting -- the pipe of the cylinder object made from an alumina -- the bore of both-ends, opening which inserts a conductor has a step, and is expanded [the diameter of it] and constituted.

[0011]

[Embodiment of the Invention] Hereafter, the gestalt of the operation which materialized this invention is explained to a detail based on a drawing. Drawing 1 is the cross-section explanatory view of the high-pressure electric-discharge lamp concerning this invention, the insertion closure of the direct electrode member 3 is carried out to both-ends opening 2a of the discharge tube 1 which consists of the cylinder object 2 made from an alumina, and photogene and starting gas, such as a halogenated compound, are enclosed with the interior. the cylinder object 2 is formed with the simple cylinder formed with the polycrystal alumina -- having -- moreover, the electrode member 3 -- a current -- it is formed from a conductor 4 and the discharge electrode 5 installed at the tip, and connection between the discharge tube 1 and the electrode member 3 is made through the jointing material for corrugated fibreboard 6 mentioned later.

[0012] Although formed with the filament which fixed at the rod of a tungsten, and its tip, a discharge electrode 5 may be formed only with the rod of a mere tungsten in order to attain a miniaturization. moreover, a current -- a conductor 4 consists of a metal pipe (pipe conductor 7) and the core material 8 of the shape of a cylindrical shape formed in the interior, and weldbonding of the both sides is carried out at the end. Moreover, a discharge electrode 5 is formed at the tip of a core material 8, and is joined by welding or metallizing junction. moreover, a pipe -- molybdenum is being used for a conductor 7 here that what is necessary is just to form by halogenide-proof matter, such as a tungsten and molybdenum. and the core material 8 -- a pipe -- it is desirable to form with the same metal as a conductor 7. thus, the conventional capillary -- losing -- a current -- the pipe which constitutes a conductor -- a electric-discharge lamp can be miniaturized by joining a conductor to the direct discharge tube 1.

[0013] By the way, when using the high-pressure electric-discharge lamp using the discharge tube made from an alumina for the head lamp for automobiles, as mentioned above, it is necessary to miniaturize, and the die length of the discharge tube is specifically 15mm or less, and the diameter is wanted to be below 6mmphi. However, the arc length of the internal discharge section is needed 1mm - about 5mm. If

it is in the configuration of this point and drawing 1, if the die length L1 of the cylinder object 2 made from an alumina which is the discharge tube 1 is 6mm or more, it can form the arc length of 1mm or more in the interior, and since the direct electrode member 3 is attached in the discharge tube, the diameter D1 of the discharge tube 1 can be made small to 1mmphi. Therefore, the high-pressure electric-discharge lamp suitable as the point light sources, such as a headlight for automobiles, formed into the false point light source can be obtained by the above-mentioned configuration. In addition, the minimum value of a discharge tube diameter is determined by the bulb wall loading at the time of lamp actuation, and it is checked by experiment that the bulb wall loading which is practical as a high-pressure electric-discharge lamp is [more than at least 15 lumen //cm / 2 (thickness of 0.25mm)] required.

[0014] next, the cylinder object 2 and a pipe -- the jointing material for corrugated fibreboard 6 which joins a conductor 7 is explained. This jointing material for corrugated fibreboard 6 infiltrates the glass wax 11 into the metal (it considers as the porosity frame 10 below) formed in porosity, and is formed in The porosity frame 10 has the open pore with the sintered compact of metal powder. here -- a pipe -- in order to make a joint property with a conductor good -- a pipe -- although formed from the sintered compact of the molybdenum powder which is the same metal as a conductor 7, as an ingredient of metal powder, pure metals, such as a tungsten and a rhenium, and those alloys can be used for others.

[0015] creation of the porosity frame 10 and the cylinder object 2 made from an alumina, and a pipe -- junction to a conductor 7 is explained based on the polar-zone closure process Fig. of drawing 2. First, metal powder is prepared, and it grinds and dries, and binders, such as ethyl cellulose or acrylic resin, are added and ****(ed), it is made the shape of a paste, and porosity frame material 10a is obtained. the paste -- a predetermined part, i.e., a pipe, -- it applies to the side face of a conductor 7 in the shape of a ring (process 2), and is made to dry at 20 degrees C - 60 degrees C This temporary-quenching object is calcinated at the temperature of 1200 degrees C - 1700 degrees C under the reducing atmosphere, inert gas ambient atmosphere, or vacuum of 20 degrees C - 50 degrees C of dew-points (process 3). the porosity frame 10 which has an open pore by carrying out like this -- a pipe -- it can form in the joint of a conductor 7.

[0016] In addition, as for the rate of an open pore of the porosity frame 10, it is desirable to consider as 30% or more and 40 more% or more, and it can make reinforcement of a junction field still higher by this. Moreover, as for the rate of the said open pore, it is desirable to consider as 80% or less and 70 more% or less, it can infiltrate glass material moderately into the open pore of a porosity frame by this, can distribute the stress which joins a porosity frame, and can raise the endurance over a heat cycle. Moreover, in order to make the sinking-in glass layer which infiltrated the glass wax 11 into such a porosity frame 10 generate moderately, it is desirable to carry out tap density of the metal powder which is the raw material of the porosity frame 10 in 2.5-3.5g/cc.

[0017] next, the process 4 -- the cylinder object 2 -- a pipe -- specified quantity insertion of the conductor 7 is carried out, the glass wax 11 is attached to the seal section, and heating melting of the glass is carried out -- making -- a pipe -- a clearance is closed while joining a conductor 7 to the cylinder object 2 (process 5). In addition, as for the glass wax 11, it is desirable to be constituted by the quality of the material chosen from the group which consists of aluminum2O3, SiO2, Y2O3, Dy2O3. and B-2s O3 and MoO3, and it is desirable to contain aluminum2O3 and SiO2 especially. And a glass wax is obtained by cracking the prepared powder thru/or frit so that it may become 60 % of the weight of predetermined glass presentations, for example, an oxidization dysprosium, 15 % of the weight of aluminas, and 25 % of the weight of silicas, adding, corning and carrying out press forming of the binders, such as polyvinyl alcohol, and degreasing. Moreover, the glass wax which is attached to a porosity frame and to attach is good to fabricate in the shape of a ring beforehand.

[0018] and the core material 8 which finally formed the discharge electrode 5 at the process 6 -- a pipe -- it inserts in a conductor 7, an edge is welded, and both sides are joined and closed.

[0019] in this way, the formed pipe -- the joint of a conductor 7 and the cylinder object 2 As shown in drawing 3 which is the expansion explanatory view of the A section of drawing 1, the attached glass wax 11 when it fuses, it sinks in into the open pore of the porosity frame 10, and the main phase 12 which consists of the porosity frame 10 and a sinking-in glass phase is formed. and the fused glass

surfaces the porosity frame 10 slightly from the front face of the cylinder object 2 further -- making -- a pipe -- the interface glass layer 13 is made to generate between a conductor 7 and the cylinder object 2 therefore, a pipe -- the wettability badness of a conductor 7 and the glass wax 11 improves -- having -- the porosity frame 10 -- minding -- the glass wax 11 -- a pipe -- it joins to a conductor 7 certainly and the cylinder object 2 made from an alumina is certainly joined with the wettability good glass wax 11. namely, a current -- a conductor 4 and the discharge tube are joined certainly -- it carries out and a glass wax carries out the hermetic seal of the clearance. thus, the pipe formed with the cylinder object made from an alumina, and the metal -- junction to a conductor can be ensured. Furthermore, though the crack has occurred in the interface glass layer, since a porosity frame prevents the progress, reinforcement can be attained. moreover, a porosity frame and a pipe -- since [the principal component of a conductor] it is the same -- a porosity frame -- a pipe -- it is firmly joined to a conductor.

[0020] Drawing 4 shows other configurations of a cylinder object, and the cylinder object 15 forms a step 16 in the electrode member insertion point of both-ends opening 15a, and the diameter of it is expanded. thus, the time of inserting the electrode member 3 and joining by forming a step 16, -- a jointing material for corrugated fibreboard 6 or a pipe -- since a conductor 7 can position in contact with a step 16 in a predetermined insertion point, a highly precise joint can be formed smoothly.

[0021] In addition, although the gestalt of the above-mentioned implementation described on the assumption that use to the head lamp for automobiles, the high-pressure electric-discharge lamp point-light-source-ized [above] can also be used also as the light source which needs the point light sources, such as an object for OHP (overhead projector), or a liquid crystal projector.

[0022]

[Effect of the Invention] according to [as explained in full detail above] invention of claim 1 -- the conventional capillary section -- a pipe -- a conductor -- carrying out -- a current -- the component of a conductor -- carrying out -- a current -- a electric-discharge lamp can be miniaturized and formed into the false point light source by joining a conductor and a cylinder object directly, and it can consider as a thing suitable as the point light sources, such as a headlight for automobiles.

[0023] according to invention of claim 2 -- the effect of the invention of claim 1 -- in addition, the pipe formed with the cylinder object made from an alumina, and the metal -- junction to a conductor can be ensured and reinforcement can be attained that it is hard to progress though the crack has occurred on glass.

[0024] according to invention of claim 3 -- the effect of the invention of claim 2 -- in addition, a porosity frame and a pipe -- since the principal component of a conductor is the same -- a porosity frame -- a pipe -- it can be made to join to a conductor firmly

[0025] According to invention of claim 4, in addition to claim 1 thru/or which effect of the invention of 3, dialing operation can be smoothly performed by preparing a step in the insertion section of an electrode member.

[Translation done.]